STAT 475
Quiz 2
Spring 2018
March 6, 2018

1. The Bloom Life Insurance Company sells a whole life insurance policy to (60). The policy pays a death benefit of 100,000 at the end of the year of death. The policy has annual premiums paid at the beginning of each policy year.

   You are given:

   i. Mortality follows the Illustrative Life Table.

   ii. Interest rates are uncertain but are distributed as follows:

      1. 5% with a probability of 30%

      2. 6% with a probability of 40%

      3. 7% with a probability of 30%

   iii. Net annual premiums are determined using 6% which is the expected value of the interest rate.

   iv. The following table of values:

i	d	A_{60}	$^{2}A_{60}$
5%	0.04762	0.42580	0.21952
6%	0.05660	0.36913	0.17741
7%	0.06542	0.32268	0.14669

   a. (2 points) The net annual premium is 3300 to the nearest 100. Calculate it to the nearest 1.

The loss at issue random variable for this policy is L_0.

b. (12 points) Complete the following table. Show your work.

i	$E[L_0 \mid i]$	$Var[L_0 \mid i]$
5%		
6%		
7%		

c. (2 points) Calculate the $E[L_0]$.

d. (6 points) Calculate the $Var[L_0]$